

Liquid ring compressors

KPH 80540, KPH 80553

Compression pressures: 0,2 to 1,5 bar
Volume flow: 2050 to 3650 m³/h

CONSTRUCTION TYPE

Sterling SIHI liquid ring compressors are displacement compressors of simple and robust construction having following special characteristics:

- Pumping of nearly all gases and vapours
- non polluting due to a nearly isothermal compression
- oil-free, as no lubrication in the working chamber
- additional liquid can be handled with the gas flow
- easy maintenance and reliable operation
- low noise and nearly free from vibration
- wide choice of material, therefore applicable nearly anywhere
- incorporated central drain
- no metallic contact of the rotating parts

The Sterling SIHI liquid ring compressors KPH 80540 and KPH 80553 single-stage compressors. They can be applied without modifications as vacuum pumps up to a suction pressure of 120 mbar (see catalogue part LI 6).



APPLICATION

Handling and compressing of dry and humid gases; entrained liquid can be handled during normal duty. The compressors are applied in all fields where a compression over pressure of up to 1,5 bar has to be created by robust compressors and only a small increase in temperature is admissible during compression.

Fields of application are e.g.

- the plastics industry, for recovery of process gases as vinyl chloride
- the petrochemical industry, for the compression of combustible gases as gasoline vapours or hydrogen
- transport of gases in general e.g. to a reactor

NOTE

During the operation the compressor must continuously be supplied with service liquid, normally water, in order to eliminate the heat resulting from the gas compression and to replenish the liquid ring, because part of the liquid is leaving the pump together with the gas. This liquid can be separated from the gas in a pressure liquid separator (see catalogue part accessories).

It is possible to reuse the service liquid. The compressors are equipped with a device by which the contaminated service liquid can be drained during operation, if necessary.

The direction of rotation is clockwise when looking from the drive on the pump.

GENERAL TECHNICAL DATA

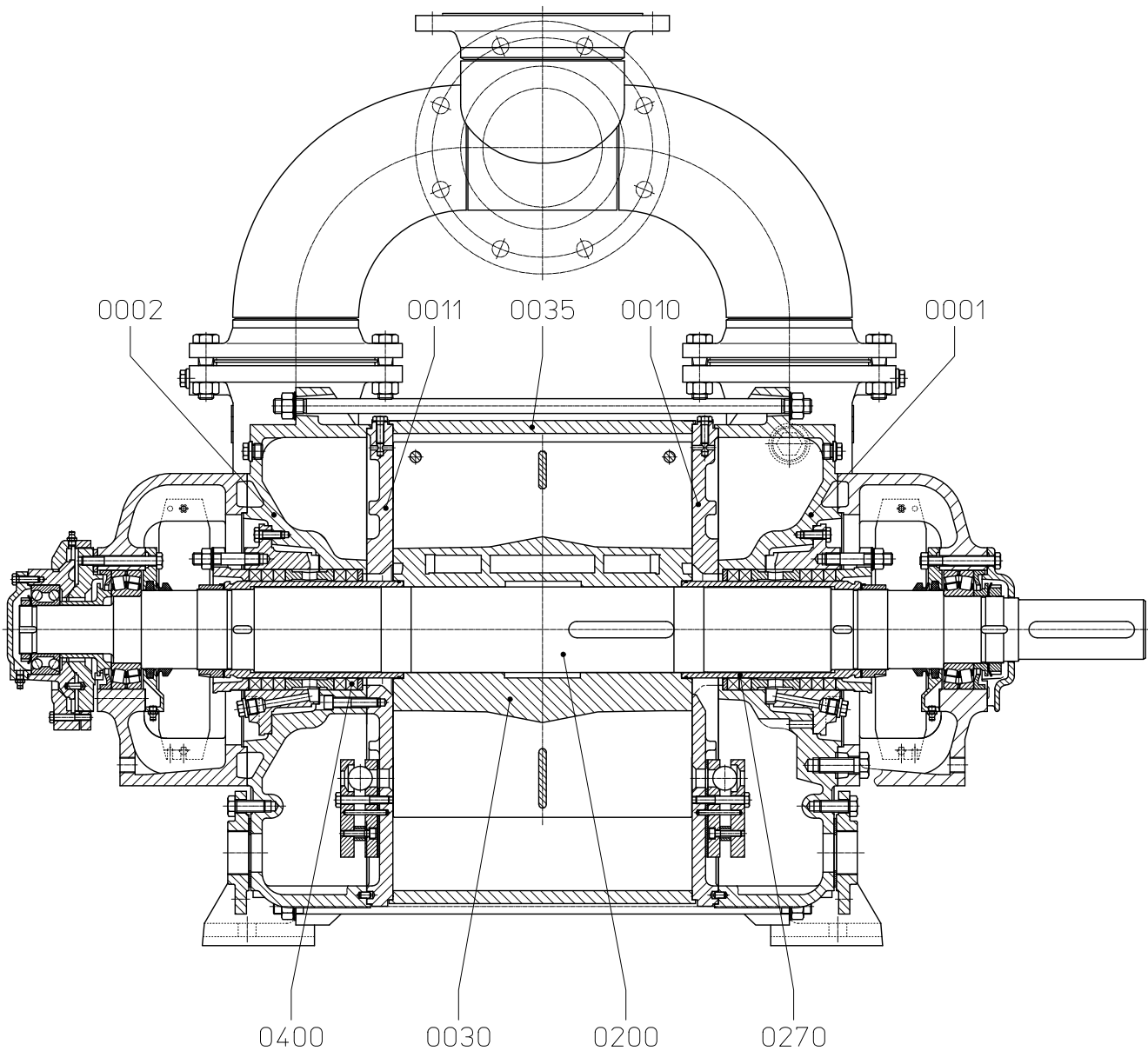
Pump type	unit	KPH 80540			KPH 80553		
		735	880	985	735	880	985
Speed	rpm	735	880	985	735	880	985
Max. compression over pressure	bar				1,5		
Hydraulic test (over pressure)	bar				3		
Moment of inertial of the rotating pump parts and the water filling	kg · m ²	7,5			10,5		
Sound pressure level of measuring area	dB (A)	87	89	90	87	89	90
Min. pulley diameter permissible in case of V-belt drive	mm	on request			on request		
Max. gas temperature	°C				80		
Service liquid							
max. admissible temperature	°C				60		
max. viscosity	mm ² /s				90		
max. density	kg/m ³				1200		
volume up to shaft level	liter	50			65		

The combination of several limiting values is not admissible.

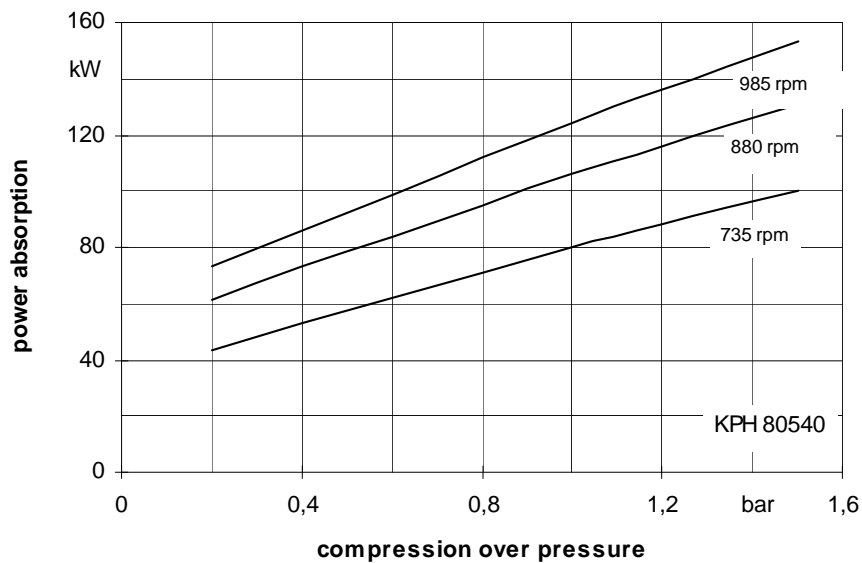
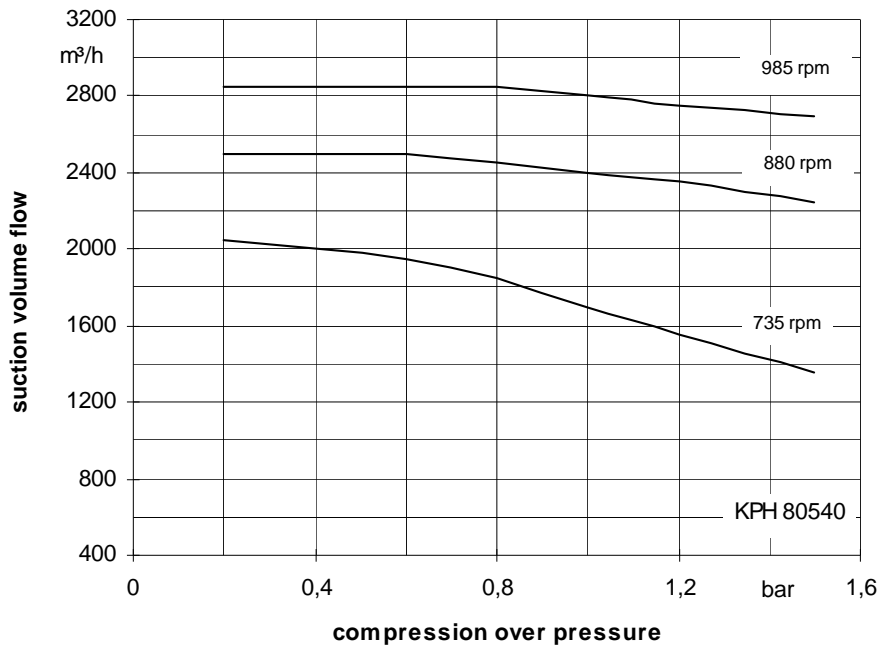
Material Design

Item	COMPONENTS	MATERIAL DESIGN	
		02	42
0001, 0002	Casing	0.6025	1.4408
0010, 0011	Guide disk	0.6025	1.4408
0030	Vane wheel impeller	1.0570	1.4571
0035	Central body	1.0038	1.4571
0200	Shaft	1.0503	
0270	Shaft sleeve	1.4027.05	1.4581
0400	Gland packing	GORE	

Sectional drawing KPH 80540, KPH 80553



Suction volume flow and power absorption KPH 80540

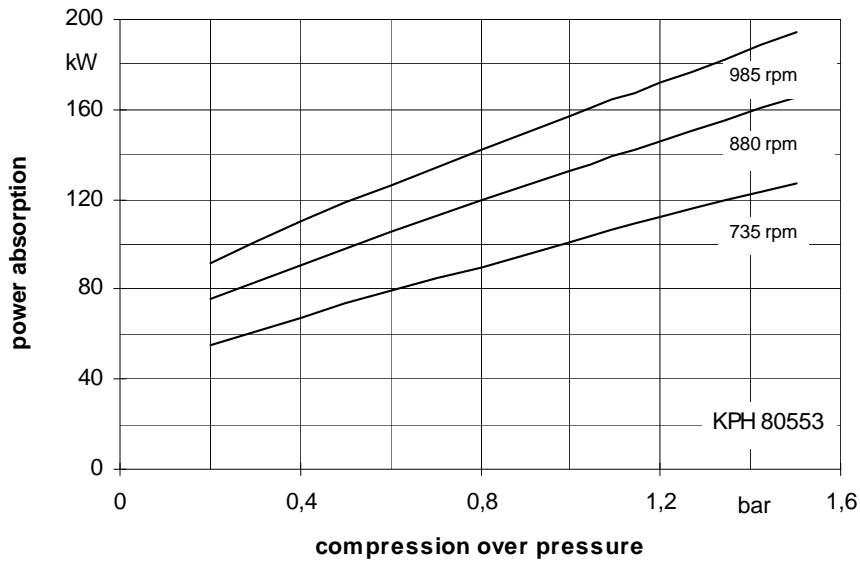
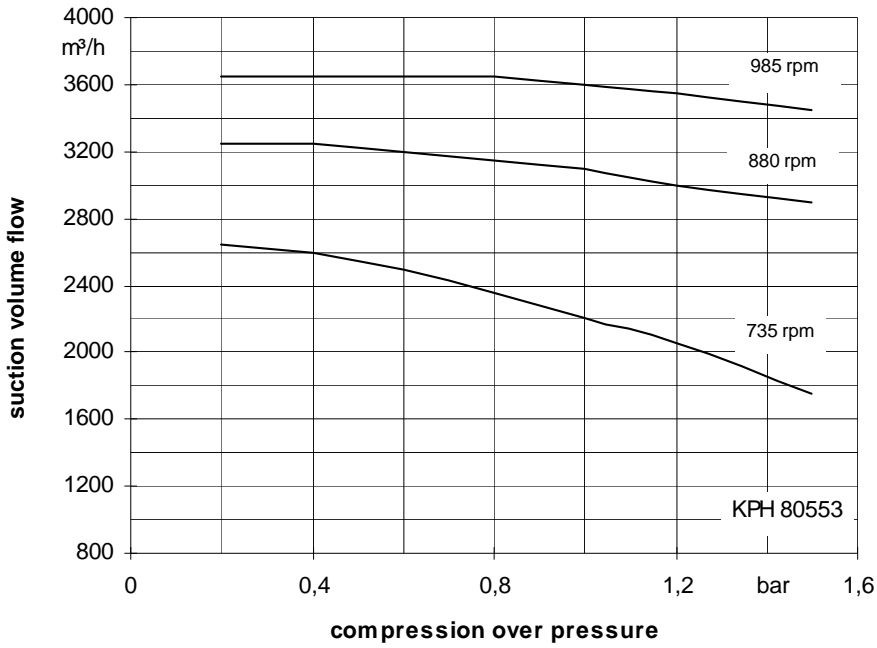


The values indicated for volume and power absorption are valid for compression of dry air at 20°C from atmospheric pressure (1013 mbar) of the respective compression pressure with water at 20°C as service liquid. Tolerance of the curve values is 10%. The compression pressure in bar is indicated as pressure above the atmospheric pressure.

The data indicated change with deviating service conditions, such as deviating physical data of the gas to be handled or of the service liquid (vapour pressure, temperature, density, viscosity) when handling entrained liquid, at a suction pressure deviating from atmospheric pressure handling gas-vapours mixtures.

For determination of service data for deviating service conditions please see catalogue section TH.

Suction volume flow and power absorption KPH 80553

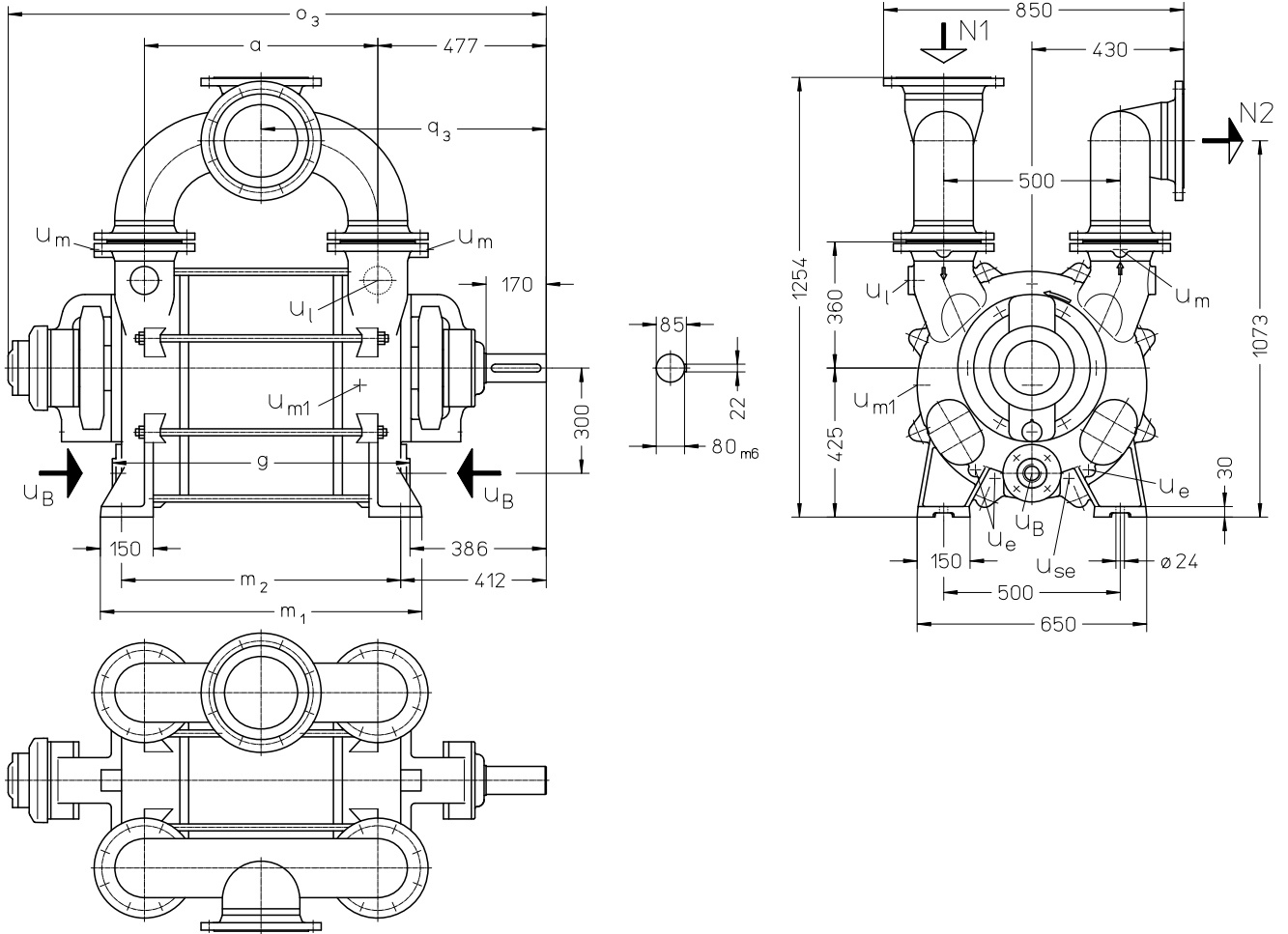


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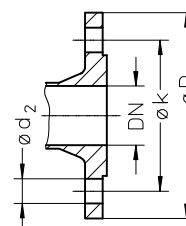
Dimension table KPH 80540, KPH 80553



- N 1 = gas-inlet DN 200
- N 2 = gas-outlet DN 200
- u_B = connection for service liquid G 2
- u_e = drain connection G ½
- u_l = connection for vent cock G 1 ½
- u_m = connection for pressure gauge G ½
- u_{m1} = connection for drain valve G ½
- u_{se} = connection for dirt drain G ½

	a	g	m ₁	m ₂	o ₃	q ₃	weight abt. kg
KPH 80540	661	843	911	791	1523	807	1050
KPH 80553	791	973	1041	921	1653	872	1150

flange connections to DIN 2501 PN 10	
DN	200
k	295
D	340
number x d ₂	8 x 22



Fresh water requirements in [m³/h] dependent on compression pressure, speed, mode of operation and temperature difference

type	speed rpm	compression pressure in bar																			
		0,4					0,8					1,2					1,5				
		KB				FB	KB				FB	KB				FB	KB				FB
		difference in temperature °C					difference in temperature °C					difference in temperature °C					difference in temperature °C				
30	20	10	5	30	20	10	5	30	20	10	5	30	20	10	5						
KPH 80540	735	1,23	1,69	2,68	3,79	6,5	1,70	2,36	3,86	5,64	11	2,15	3,00	4,97	7,40	15	2,45	3,43	5,71	8,55	17
	880	1,55	2,06	3,07	4,06	6	2,12	2,85	4,39	6,01	9,5	2,62	3,56	5,55	7,68	13	3,00	4,09	6,43	9,00	15
	985	1,65	2,12	2,98	3,74	5	2,33	3,07	4,51	5,90	8,5	2,91	3,87	5,80	7,71	12	3,34	4,47	6,78	9,14	14
KPH 80553	735	1,53	2,08	3,26	4,54	7,5	2,12	2,92	4,70	6,76	12	2,69	8,32	6,87	5,85	17	3,08	4,29	7,06	10,4	20
	880	1,90	2,51	3,69	4,84	7	2,62	3,51	5,32	7,17	11	3,27	4,42	6,83	9,39	15	3,74	5,09	7,93	11,0	18
	985	2,07	2,64	3,67	4,55	6	2,89	3,79	5,50	7,09	10	3,64	4,84	7,19	9,50	14	4,16	5,54	8,29	11,0	17

FB = make-up liquid service

KB = combined liquid service, service liquid 30 °C, 20 °C, 10 °C, 5 °C warmer than the make-up water

Data regarding the pump size - order hints

series + size	hydraulic + bearings	shaft sealing	material design	case sealing
	<ul style="list-style-type: none"> • B two antifriction bearings • N one shaft end clockwise rotating 	041 double gland packing	<ul style="list-style-type: none"> 02 main parts cast iron, without non-ferrous metal 42 main parts high-grade steel 	0 liquid seal
KPH 80540 80553	BN	041	02, 42	0

Accessories

recommended accessories			KPH 80540	KPH 80553
Pressure liquid separator		type weight	XBd 5014 197 kg	
material design	130 / St-galvanized 172 / 1.4571	SIHI part No.	35 000 341 35 000 342	
Service liquid line				
material design	072 / St 37-0 172 / 1.4571	SIHI part No.	35 003 211 35 003 212	35 003 213 on request
Liquid discharge trap		type / weight	XUk 6602 / 77 kg	
material design	762 / GG20+1.4541	SIHI part No.	43 014 817	
Hanging gas line				
material design	072 / St 37-0	SIHI part No.	On request	
Base frame				
material design	081 / RSt 37-2	SIHI part No.	35 002 957 (for motor 315 M) 271 kg further base frames on request	on request

Any changes in the interest of the technical development are reserved.

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